

ters of the spicula however are not given, and without a knowledge of these, no very conclusive opinion ought to be formed on the subject. In the abstract of Nardo's report, we casually learn, undoubtedly, that the spicula are "sharp at one end and rounded at the other" in *V. Michelini*; but in the *C. spinosa*, which Mr. Morris considers identical with it, they are of *two* kinds; one fusiform and bent in the centre, the other with a globular enlargement at one end. It would therefore seem probable that these two species at least are distinct. The fact of specimens occurring in the same species of shell is not of much value in determining their identity: I have already described six or seven species procured from the same matrix.

I remain, dear Sir, yours truly,

ALBANY HANCOCK.

XXXIX.—*Contributions to the Botany of South America.*

By JOHN MIERS, Esq., F.R.S., F.L.S.

[Continued from p. 256.]

THINOGETON.

THIS interesting genus was founded by Mr. Bentham upon one of the plants collected on the coast of the Pacific, near Guayaquil, during the voyage of the 'Sulphur;' it is identical with *Dictyocalyx*, proposed by Dr. Hooker for a plant obtained by Mr. Darwin in one of the islands of the Gallapagos group. In many respects its characters approach so closely upon *Cacabus*, that some might feel disposed to consider them as congeneric; its habit, however, is not so herbaceous, its stems are more straggling, terete, and though fistulose, are more woody; the petiole is rounder, thicker, and grows to an unusual length (three or four times that of the blade) after the full growth of the leaf; the corolla is less campanular, more infundibuliform, and after the impregnation of the ovarium, coils up spirally as in *Convolvulus*, and remains attached to the calyx until the fruit is matured; the stamens are more unequal and shorter, the filaments less slender and more arched at their origin than in *Cacabus*; the epigynous gland crowning the ovarium is much larger, more than hemispherical, being gradually lost in the texture of the more slender basal portion, while in *Cacabus* it is distinct, prominent, and much smaller, rising on the summit of the germen, like a small bulbular expansion of the style. A still more marked difference is seen in the calyx, which in the florescent state in *Thinogeton*, is of much smaller diameter, quite tubular and invests the contracted base of the corolla; it is of thicker texture, and

marked by ten prominent fleshy ribs, tapering gradually into the peduncle: in *Cacabus*, on the contrary, the calyx is at least three times the diameter of the base of the corolla, is more or less globular, of extremely thin and transparent texture, venously reticulated, plicated and deeply 5-angular, the angles being saccate at base; the peduncle in *Thinogeton*, after the impregnation of the ovarium, becomes immediately deflexed, grows to four times its former length, and is afterwards much thickened at its apex: the teeth do not increase in size, but the tube, as in *Physalis*, becomes somewhat vesicular, reticulated, and 10-ribbed; expands to three times its former length, and five times its breadth, its texture remaining much thicker, when compared with the greatly inflated and delicately membranaceous web, which encloses the berry in *Cacabus*. The structure of the ovarium is similar to that of the last-mentioned genus, but the furcated placentæ are again divided, and secrete an aqueous juice, in which the seeds are nourished; the dissepiment remains membranaceous, but the placentæ at length become hard and woody, and the cells dry and capsular, while in *Cacabus* the pericarp, the placentæ and the dissepiment are all more or less membranaceous. The fruit, though somewhat fragile, does not burst by an opercular line, as in *Hyoscyamus*, because of the very gradual attenuation and absorption of its epigynous gland into the substance of the pericarpial membrane, not less than on account of the thickening and indurescence of the dissepiment and placentæ: for these reasons, it does not open by a sharp horizontal line, as in that genus, but remains a brittle, indehiscent putamen, with a tendency to break by an irregular transverse line in its thinnest part.

THINOGETON, Bth. Char. ampl.—*Calyx* tubulosus, 10-striatus ad medium 5-partitus, laciniis acutissimis, erectis, subæqualibus, persistens et augescens. *Corolla* infundibuliformis, tubo imo coarctato, dein gradatim ampliato, 15-nervio, limbo 5-fido, lobis brevibus subinæqualibus, 3-angularibus. *Stamina* 5, inclusa, inæqualia, corolla 3-plo breviora; *filamenta* in coarctationem tubi inserta, hinc fornicata, erecta, gracilia; *antheræ* conniventes, oblongæ, apicifixæ, 2-loculares, loculis parallele adnatis, rima marginali dehiscentibus. *Ovarium* ovatum, 2-loculare, dissepimento tenui, placentis cruciformibus utrinque adnatis, in locellis furcatis, carnosus, undique ovuligeris. *Stylus* leviter curvatus, filiformis, staminibus excedens. *Stigma* spathulato-dilatatum, compressum, sub-2-labiatum. *Bacca* exsiccata, intra calyceem auctum vesiciformem, venoso-reticulatum, 10-costatum inclusa, subglobosa, cortice coriáceo, superne crassiore, inferne subfragili, evalvato, 2-locularis, placentis furcatis coriáceis, seminibus plurimis gerentibus. *Semina* com-

pressa, subreniformia, testa scrobiculata, hilo laterali, marginali. *Embryo* intra *albumen* carnosum teres, subspiralis, radícula angulo basali spectante, hilo evitante, *cotyledonibus* semiteretibus paulo longiore.—Herbæ *Americæ intertropicæ prostratæ, subpilosæ, subcarnosæ, Convolvuli facie*; foliis *alternis, axillaribus, oblongis, acutis, sinuato-incisis, vel undulatis, longissime petiolatis, petiolo canaliculato, demum producto*; floribus *solitariis vel binis, pedunculatis subsecundis*.

1. *Thinogeton maritimum*, Bth. Voy. Sulph. 142;—viscoso-pubesens, carnosulum; foliis lanceolatis vel lineari-oblongis, sinuoso-lobatis, vel grosse dentatis, basi in petiolum alatum angustatis, crassiusculis, longiuscule petiolatis, floralibus decrescentibus; floribus solitariis vel geminis, lateralibus, axillis approximatis hinc pseudo-paniculatis et terminalibus, corolla sub-violacea.—Ecuador, ad Tumbez, in littoris maritimis; *v. s. in herb. Hooker* (Lima, *Cuming*, no. 972).

This is a prostrate plant, with much the habit of a *Nolana*, its branches measuring a foot and upwards. Its petioles and pedicels are erect, and therefore are all somewhat secund: I have not seen any cauline leaves, but the floral leaves are much smaller, greatly narrower, and upon a shorter petiole than in the following species; the pedicels are 2 to 4 lines long, the calyx is 3 lines long, and 1 line diameter, swelling afterwards to a length of 7 lines and a diameter of 5 lines: the corolla is 15 or 16 lines long, and 10 to 13 lines broad across the border; it is pubescent outside, is persistent, and on withering, coils up in a spiral form, when the peduncle increases to a length of 9 lines and becomes suddenly reflexed. The berry is 4 lines in diameter, enclosed within the enlarged vesiciform calyx.

2. *Thinogeton Miersii*. Dietyocalyx *Miersii*, *Hook. fil. Linn. Trans.* xx. p. 203;—subpubescens, foliis ovatis, acutis, basi inæqualibus, cordato-auriculatis, et in petiolum angustatis, irregulariter sinuato-angulatis, angulis subobtusis, 3–5-nerviis, crasso-coriaceis, utrinque pilis brevibus rigidiusculis articulatis conspersis, longissime petiolatis; floribus solitariis vel geminis, lateralibus, corolla sub-violacea extus puberula, limbo vix explanato, staminibus corolla brevioribus.—Ins. Gallapagos, *v. s. in herb. Hook.* (Charles et Albemarle Islands, *Darwin*.)

This plant possesses a habit similar to that of the former species. The branching stems of woody texture are fistulose, smooth and terete. The leaves are from $2\frac{1}{2}$ to 3 inches long, 2 to $2\frac{1}{2}$ inches broad, on a channeled petiole $\frac{5}{8}$ inches long, that is nearly rectangular with the stem: they are almost smooth, or sparsely covered with very short rigid hairs: the peduncles are slender,

$\frac{1}{2}$ to 1 inch long; the calyx is 5 lines long, 2 lines diameter; the corolla is $1\frac{1}{2}$ inch long, contracted for the length of 5 lines to a diameter of 1 line, and thence gradually swelling into a funnel shape, is 1 inch across the mouth; three nearly parallel nervures extend along the middle of the lobes to the base of the tube; the stamens arise in the contraction of the tube, and the anthers, which are double the length of those of the former species, are connivent around the style in the middle of the corolla; the flower on withering coils up in a spiral form, and the peduncle, subsequently deflexed, increases to a length of $1\frac{1}{2}$ to $1\frac{3}{4}$ inch, becomes thicker, and enlarges considerably at its apex; the calyx swells to an oblong oval form, nearly an inch long, 7 lines broad, 10-angular, with ten prominent costate ribs, vesiciform, with the mouth closed by five short connivent teeth: it encloses a berry 7 lines long, 5 lines diameter; the pericarp is almost a putamen, the upper moiety being thick and coriaceous, the lower half thinner and more fragile; the dissepiment, and especially the lunated placenta, become thickened, coriaceous and almost ligneous; it is apparently void of pulp, enclosing several seeds scarcely a line in diameter and much compressed, which are described by Dr. Hooker as being large; but that term is evidently used in comparison with those of *Nicotianum*, with which this genus was thought to hold a close relation; they are on the contrary smaller than in many other genera of this tribe*.

3. *Thinogeton Lobbianum* (n. sp.);—viscoso-pubescent, caule striato, flexuoso; foliis ovalibus, irregulariter sinuato-angulosis et dentatis, imo cordato-auriculatis, et in petiolum longiusculum breviter attenuatis, 3–5-nerviis, tenuioribus, utrinque tomento brevi glanduloso subincano pubescentibus, petiolo tenui valde tomentoso; floribus geminatis, calyce pubescente, corolla sub-violacea, extus puberula, staminibus inæqualibus, corolla 2–3-plove brevioribus.—Columbia et Peruvia; v. s. in herb. Hook. (Columbia, *Lobb. no. 299.* Peru, *Maclean.*)

This species is evidently intermediate between the two foregoing: the stem is much smaller, more striated, far more flexuose, with much shorter internodes, and altogether more pubescent than the last described; the leaves are 2 inches long, $1\frac{3}{4}$ inch broad, on a petiole of $2\frac{1}{4}$ inches, but probably the lower leaves are somewhat larger: the peduncles are 9 lines long, slender and erect, but become suddenly deflexed on the withering of the corolla; the calyx is 4 lines long, $1\frac{1}{2}$ line diameter; the corolla $1\frac{1}{4}$ inch long, $\frac{3}{4}$ inch broad in the mouth; the fructiferous calyx becomes almost globular, 5 lines long and 4 lines in diameter, contracted

* A figure of this species, with generic details, will be given in plate 50 of the 'Illustr. South Amer. Plants.'

in the mouth, with five erect teeth, and enclosing a nearly globular berry 4 lines in diameter.

POLYDICLIS.

The *Nicotiana quadrivalvis* of Pursh, and the *Nicotiana multivalvis* of Prof. Lindley, have long been known as anomalous species, which Don placed in his section *Polydichia* of that genus, and I propose to adopt that name, or rather its more correct derivation, for a distinct genus, in order to embrace these plants, which are distinguished from *Nicotiana* by the different structure of the fruit and other characters. The first-mentioned plant is a native of Missouri, where it is said to be cultivated as tobacco; it was introduced into England in 1811 and figured in the 'Botanical Magazine.' The latter species was first cultivated in England in 1826 and figured in the 'Botanical Register.' They both differ from *Nicotiana* in their globular, three or more celled ovarium, with placentæ projecting from the axis into the middle of the cell, where they become thickened and ovuligerous. The capsule is globular, often very large, umbilicate at the apex, three- to eight-grooved, with as many corresponding septicial valves, which break away from the shriveled dissepiments. In *Polydiclis multivalvis*, which has a six- or eight-celled ovarium, the placentæ are often pluripartite in each cell, and as they become incrassated, the fruit according to Dr. Lindley presents a series of external spurious cells around the true seminal cavities. Its generic name is derived from *πολύς*, *multus*, *δικλῆς*, *valva*, on account of the greater number of the valves and divisions of its capsule.

POLYDICLIS (gen. nov.).—*Calyx* globoso-tubulosus, 10–16-nervis, 5–8-dentatus, dentibus valde acutis, inæqualibus, erectis, persistens et augescens. *Corolla* tubo cylindrico, 15- vel pluri-nervio, basi ventricoso, calyce 2–3-plo longiore, limbo late campanulato, ad medium 5–6-fido, laciniis expansis, obtusiusculis, 3-nerviis, venisque anastomosantibus pictis. *Stamina* 5–6, inæqualia, inclusa, medio corollæ inserta, *filamenta* tubo 3-plo breviora, filiformia, *antheræ* ovatæ, 2-lobæ, lobis liberis, appositis, rima exteriori dehiscentibus. *Ovarium* globosum, disco carnosum insitum, 3 ad 6-loculare, placentis ex angulis prominentibus in centro loculorum incrassatis, multiovulatis. *Stylus* erectus, inclusus. *Stigma* clavatum, 3 ad 6-lobum, lobis obtusis, expansis, glanduloso-papillois. *Capsula* globosa, magna, umbilicata, 3–12-sulcata, calyce aucto arete cincta, 3-pluriloculari, 3-plurivalvis, valvis septicialibus dissepimentis demum solutis, sæpe locellis aliis spuriis exterioribus donata. *Semina* plurima, parva, oblonga, compressiuscula, hilo laterali. *Embryo* intra albumen carnosum leviter incurvus, *radicula* te-

reti, angulo basali spectante, *cotyledonibus* ovatis plano-con-
vexis duplo longiore.—Herbæ *Americæ septentrionalis viscoso-*
pubescentes, odore fœtido; folia alterna, ovato-lanceolata, ellip-
tica, utrinque acuminata; flores axillares, albidî, reticulato-
picti.

1. *Polydiclis multivalvis*. *Nicotiana multivalvis*, *Lindl. Bot. Reg.* tab. 833; *Don, Dict.* iv. 466;—viscido-pilosa, foliis carnosis, ovato-lanceolatis, breviter petiolatis, utrinque acuminatis, integris, margine undulatis, demum fere glabris; floribus solitariis, paucis, axillaribus; corolla magna, limbo explanato, albida, venis purpureis picta, 5–6-mera.—Columbia River, in locis saxosis.

This plant is said to be of a strong hircose odour and viscid; the leaves of the specimens I have seen are 6 inches long, $2\frac{1}{4}$ inches broad, on a petiole not longer than $\frac{1}{4}$ or $\frac{1}{2}$ an inch, which, together with the midrib, is fleshy, broad, and semiterete. The peduncle is scarcely more than $\frac{1}{4}$ inch long; the calyx about $\frac{5}{8}$ inch in length, and $\frac{3}{8}$ inch diameter in its broadest part, contracted above, and divided into five, sometimes six very acute lanceolate teeth, one-third of its entire length; it has ten or twelve prominent nervures with intermediate reticulations. The tube of the corolla is cylindrical, somewhat swollen at the base, $1\frac{1}{2}$ inch long, $\frac{1}{4}$ inch diameter; the border is very broad, expanded, about 2 inches across, and divided to nearly half its breadth into five, sometimes six triangular obtuse segments: it is of a whitish colour, with anastomosing purplish lines. The stamens are equal in number to the segments of the corolla, and the anthers rise to the mouth of the tube. The berry is large, globular, $1\frac{1}{4}$ inch diameter, marked with deep grooves, corresponding with the number of cells, which vary from six to twelve; it is umbilicate at the summit, and crowned by the persistent style, its lower half being closely invested by the swollen calyx.

2. *Polydiclis quadrivalvis*. *Nicotiana quadrivalvis*, *Pursh, Fl. Am. Sept.* i. 141; *Lehm. Hist. Nicot.* c. 45. tab. 4; *Don, Dict.* iv. 466; *Bot. Mag.* tab. 1778;—viscido-pilosa, caule herbaceo, ramoso; foliis oblongis, utrinque attenuatis, integris, superioribus lanceolatis, subsessilibus; floribus 5-meris, ovario 3–4-loculari, calyce pilosiusculo, corolla genitalibusque glabris, stigmate 3–4-lobo.—Missouri.

The leaves of this species appear somewhat smaller than in the foregoing species, and are slightly ciliate on the margin, with jointed articulated hairs; the corolla is also much smaller, and the globular, usually 4-celled capsule, wholly enclosed in the persistent calyx, is about half an inch in diameter.

The *Nicotiana nana*, Lindl. Bot. Reg. tab. 833, referred by Don to his section *Polydichia*, cannot belong to this genus, as its ovarium is bilocular, and as it corresponds in few respects. The plant has certainly nothing of the habit of a *Nicotiana*, and it is difficult, in the absence of a satisfactory specimen, to determine to what genus it should be referred.

BIBLIOGRAPHICAL NOTICES.

Antiquités Celtiques et Antédiluviennes ; Mémoire sur l'Industrie primitive et les Arts à leur origine, avec 80 planches représentant 1600 figures. Paris, 1849.

THIS very curious and interesting work is the result of the labours and researches of a gentleman of independent fortune, and of taste, science and public spirit, residing at Abbeville. He has been from the first commencement of the Société d'Emulation in that city its active, liberal, and munificent President. During the last ten years he has gone to the expense of ascertaining what remains of primitive art could be discovered underneath the beds of peat, gravel and other materials, which cover the bottom of his own valley, that of the river Somme, and he has extended his inquiries also into the valley of the Seine. The deposits which he has turned over have not been simply alluvial in the strict geological sense of the word, but have also presented those appearances, especially in their fossil contents, which have always been considered as distinctive of *diluvium*. In these deposits to a great extent and in numerous instances M. Boucher de Perthes has found articles of bone, horn and flint, evidently fashioned by human labour, and intended to serve the purposes of arms, tools, utensils and symbols. He has discovered these objects both in the midst of and several metres below the *débris* of elephants, mastodons, saurians, and other extinct species, specimens of which, presented by him, are exhibited in the Museum of Natural History at Paris. Collections of the rudely shaped, but indisputably artificial objects so situated may be seen in the museums at Abbeville and Amiens; and in addition to his ample relations of his researches, the author has given outline figures of many hundreds of them in the numerous plates which illustrate his volume. Such is the importance attached to his labours by the best judges in his own country, that the Académie des Sciences has at his request appointed MM. S. Cordier, Dufrenoy, and Elie de Beaumont as a commission to investigate the subject in its relation to geology, and the Académie des Inscriptions et Belles Lettres has named another commission, including MM. Jomard and Raoul-Rochette, to examine the matter as archæologists (pp. v, vi, x).

The subject of this remarkable volume is one, in the treatment of which archæology and geology join hands. It consequently embraces a great variety of considerations bearing upon history, physiology, and other branches of science. The numerous questions